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A new species of the genus *Aculepeira* from Qinghai-Tibet Plateau, China (Aranei: Araneidae)

Новый вид пауков рода *Aculepeira* из Циньхай-Тибетского плато, Китай (Aranei: Araneidae)

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KEY WORDS: Aranei, Araneidae, orb-weaver, *Aculepeira*, new species, China.
КЛЮЧЕВЫЕ СЛОВА: Aranei, Araneidae, кругопряд, *Aculepeira*, новый вид, Китай.

ABSTRACT. A new species of the orb-weaving genus *Aculepeira* Chamberlin & Ivie, 1942, from Qinghai-Tibet Plateau, China, is described and illustrated: *A. serpentina* sp.n.

РЕЗЮМЕ. Приведено иллюстрированное описание нового вида рода *Aculepeira* Chamberlin & Ivie, 1942, *A. serpentina* sp.n., из Циньхай-Тибетского плато в Китае.

Introduction

The orb-weaving genus *Aculepeira* was established by Chamberlin & Ivie [1942]. *Epeira aculeata* Emerton, 1877, was designated as a type species. Levi [1977] pointed out that actually *E. aculeata* is a junior synonym of *A. packardi* (Thorell, 1875). The genus *Aculepeira* is a small genus in the family Araneidae, comprising 26 species from Palaearctic, Nearctic and Neotropic regions, of which six species are known from China presently [Levi, 1977, 1991; Yin *et al.*, 1997; Song *et al.*, 1999; Hu, 2001; Li & Wang, 2010; Platnick, 2010].

The spiders in the genus *Aculepeira* have some somatic and genital characters, such as elongate, egg-shaped abdomen (dorsoventrally flattened in a few species); epigynum with a pointed scape, whose tip lacks the pocket; median apophysis bearing two flagellae on its proximal end; the conductor boat-shaped to disc-shaped, lying on the rim of the tegulum behind the median apophysis; palpus without paramedian apophysis; and terminal and subterminal apophysis present [Levi, 1977, 1991].

The Qinghai-Tibet Plateau is located in the central section of Asia, and it is the maximal plateau in the world. Because of the average altitude above 4.000 meters, it has names such as “the roofs of the world” and “third poles”.

Six *Aculepeira* species were reported from China in the past [Yin *et al.*, 1997; Song *et al.*, 1999; Hu, 2001; Platnick, 2010]. *A. taibaishanensis* Zhu & Wang, 1995 is known only from Shaanxi Province; *A. armida orientalis* (Kulczyn’ski, 1901) distributed in Hebei, Shanxi, Beijing and Jilin provinces; and *A. armida* (Audouin, 1826) distributed in Hebei Province. While examining the *Aculepeira* spider specimens collected from Qinghai-Tibet Plateau, China, we found four species, among them, *A. carbonaria sinensis* (Schenkel, 1953), *A. luosangensis* Yin *et al.*, 1990 and *A. packardi* (Thorell, 1875) are the well-known species, and are well illustrated [Yin *et al.*, 1997]; but another *Aculepeira* species is found to be new to science, and we described it under the name *Aculepeira serpentina* sp.n. in this paper.

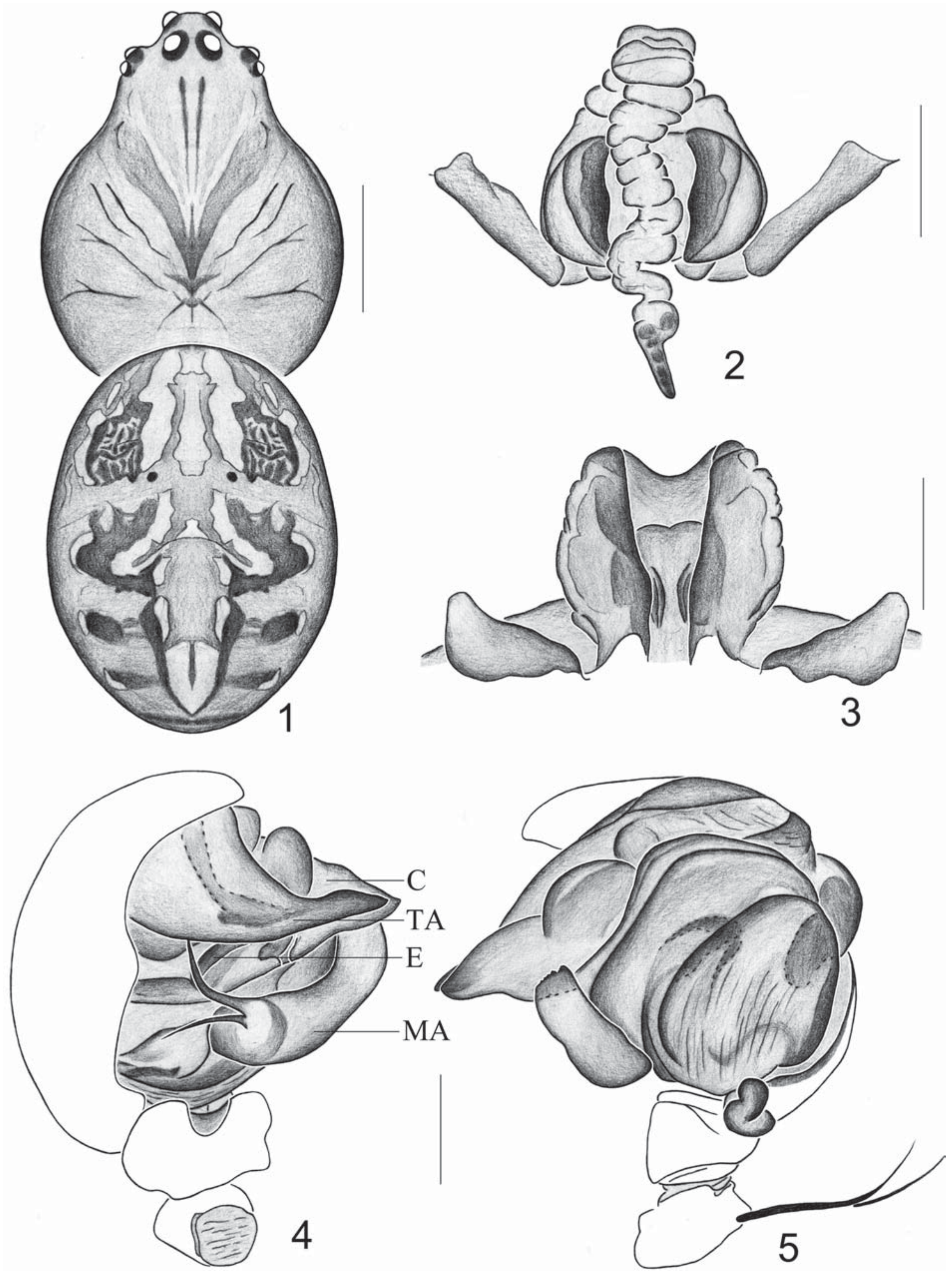
Material and methods

All specimens were preserved in 75% alcohol, examined and illustrated under a Tech XTL-II stereomicroscope equipped with an Abbe drawing device. Specimens of the new species were deposited in the Museum of Hebei University (MHBU), Baoding, China and Zoological Museum of the Moscow State University (ZMUM), Moscow, Russia. All measurements are given in millimeters. Abbreviations used in the text: AER, anterior eye row; ALE — anterior lateral eye(s); AME — anterior median eye(s); MOA — median ocular area; PER, posterior eye row; PLE — posterior lateral eye(s); PME — posterior median eye(s); TA — terminal apophysis; C — conductor; E — embolus; MA — median apophysis.

Taxonomy

Aculepeira serpentina **sp.n.**
Figs. 1–5.

YPE MATERIAL. Male holotype, China: **Qinghai** Province, Xining City, Qilian Mountain (36°45'N, 101°24'E), 6 July 2002,



Figs 1–5. *Aculepeira serpentina* sp.n. Male holotype and female paratype: 1 — male body, dorsal view; 2 — epigynum, ventral view; 3 — same, posterior view; 4 — male left palp, prolateral view; 5 — same, retrolateral view. Scale bars: 1.0 mm (1), 0.3 mm (2–5).

Рис. 1–5. *Aculepeira serpentina* sp.n., голотип самец и паратип самка: 1 — самец, сверху; 2 — эпигина, снизу; 3 — эпигина, сзади; 4 — левая пальпа самца, пролатерально; 5 — левая пальпа самца, ретролатерально. Масштаб: 1,0 мм (1), 0,3 мм (2–5).

Yang Zeng leg. (MHBU). Paratypes: 1 ♂, 2 ♀♀, same data as holotype (MHBU); 1 ♂, 3 ♀♀ (MHBU), 1 ♀ (ZMUM), **Tibet Autonomous Region**, Lhasa City, Qiyi Farm (29°38'N, 91°02'E), 30 July 2002, Feng Zhang leg. (MHBU).

ETYMOLOGY. The specific name is derived from the Latin word "*serpentina*", referring to the shape of scape of epigynum.

DIAGNOSIS. This new species resembles *A. luosangensis*, but can be distinguished from the latter by: (1) the epigynal scape slender, tortuous, and snake-shaped; (2) the terminal apophysis extremely broad; (3) the embolus short, spine-shaped, the tip wrapped by terminal apophysis; (4) two flagellae of median apophysis gracile; (5) distal teeth of median apophysis small and close to each other.

DESCRIPTION. Male: total length 4.90–5.61. Holotype male total length 4.90: carapace 2.55 long, 2.14 wide; abdomen 2.81 long, 1.99 wide. Carapace dark brown. Cervical groove and radial grooves unconspicuous (Fig. 1). Fovea dark brown. AER recurved and PER slightly recurved from dorsal view. Eyes measurements: ALE 0.08, AME 0.08, PLE 0.08, PME 0.13; AME–AME 0.15, AME–ALE 0.18, PME–PME 0.13, PME–PLE 0.28; MOA length 0.38, anterior width 0.35, posterior width 0.38. Chelicerae yellow brown, promargin and retromargin with three teeth. Endites and labium yellow brown, inner margins yellow. Sternum dark brown. Legs yellow without annulations. Leg measurements: I 10.15 (2.96 + 0.97 + 2.70 + 2.50 + 1.02); II 7.71 (2.19 + 0.92 + 2.04 + 1.79 + 0.77); III 4.99 (1.63 + 0.56 + 1.07 + 1.02 + 0.71); IV 7.18 (2.24 + 0.66 + 1.73 + 1.73 + 0.82). Leg formula: 1243. Abdomen oval, longer than wide; dorsum dark brown, with a yellow, foli-shaped median marking (Fig. 1); venter dark brown, with white marking.

Palp (Figs. 4–5): terminal apophysis extremely broad; embolus short, spine-shaped, the tip wrapped by terminal apophysis and not visible; conductor triangular, membranous; median apophysis bearing two slender flagellae on its proximal end, distal teeth of median apophysis tiny and closely separated.

Female: Total length 7.96–10.10. One female paratype (Mt. Qilian) total length 7.96: carapace 2.60 long, 2.14 wide; abdomen 3.88 long, 2.81 wide. Eyes measurements: ALE 0.10, AME 0.10, PLE 0.10, PME 0.13; AME–AME 0.18, AME–ALE 0.23, PME–PME 0.15, PME–PLE 0.28; MOA length 0.30, anterior width 0.30, posterior width 0.25. Measurements of legs: I 8.62 (2.50 + 1.02 + 2.09 + 2.09 + 0.92), II 7.65 (2.24 + 0.92 + 1.68 + 1.99 + 0.82) , III 4.64 (1.43 + 0.56 + 0.92 + 1.07 + 0.66), IV 7.25 (2.19 + 0.77 + 1.63 + 1.89 + 0.77). Leg formula: 1243. Color lighter than that of holotype male. Other characteristics as same as male.

Epigynum (Figs. 2–3): epigynal scape slender, tortuous and wrinkled, snake-shaped, tip lacking pocket.

DISTRIBUTION. China (Qinghai, Tibet).

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